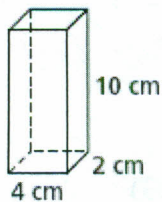


Find the surface area and volume of each figure.

1. S.A. 80cm^2

Vol 80cm^3

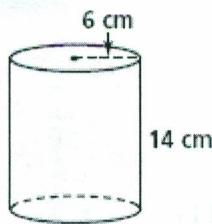


$$\begin{aligned} S.A. &= ph + 2B \\ B &= 8 \quad p = 12 \quad h = 10 \\ S.A. &= (12)(10) + 2(8) \\ &= 120 + 16 \\ &= 136 \end{aligned}$$

$$\begin{aligned} V &= Bh \\ B &= 8 \quad h = 10 \\ V &= (8)(10) \\ &= 80 \end{aligned}$$

2. S.A. $520\pi\text{cm}^2$

Vol $504\pi\text{cm}^3$

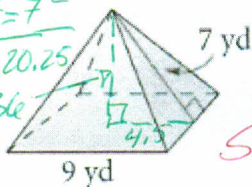


$$\begin{aligned} S.A. &= 2\pi rh + 2\pi r^2 \\ r &= 6 \quad h = 14 \\ S.A. &= 2\pi(6)(14) + 2\pi(6)^2 \\ &= 168\pi + 72\pi \\ &= 240\pi \end{aligned}$$

$$\begin{aligned} V &= Bh \\ B &= 36\pi \\ h &= 14 \\ V &= (36\pi)(14) \\ &= 504\pi \end{aligned}$$

3. S.A. 207yd^2

Vol 144.72yd^3

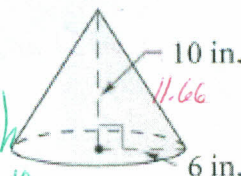


$$\begin{aligned} S.A. &= \frac{1}{2}pl + B \\ B &= 81 \quad p = 36 \quad l = 7 \\ S.A. &= \frac{1}{2}(36)(7) + 81 \\ &= 126 + 81 \\ &= 207 \end{aligned}$$

$$\begin{aligned} a^2 + 4.5^2 &= 7^2 \\ a &= \sqrt{49 - 20.25} \\ a &\approx 5.36 \\ V &= \frac{1}{3}Bh \\ B &= 81 \quad h = 5.36 \\ V &= \frac{1}{3}(81)(5.36) \\ V &= 144.72 \end{aligned}$$

4. S.A. $105.96\pi\text{in}^2$

Vol $120\pi\text{in}^3$

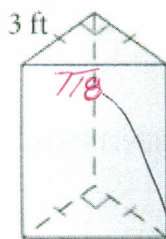


$$\begin{aligned} V &= \frac{1}{3}\pi r^2 h \\ r &= 6 \quad h = 10 \\ V &= \frac{1}{3}\pi(6)^2(10) \\ V &= 120\pi \end{aligned}$$

$$\begin{aligned} S.A. &= \pi r l + \pi r^2 \\ r &= 6 \quad l = 11.66 \\ S.A. &= \pi(6)(11.66) + \pi(6)^2 \\ &= 105.96\pi + 36\pi \\ &= 141.96\pi \end{aligned}$$

5. S.A. 60.21ft^2

Vol 22.5ft^3



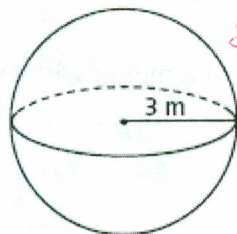
$$\begin{aligned} S.A. &= ph + 2B \\ B &= 4.5 \quad h = 5 \quad p = 6 + \sqrt{18} \\ S.A. &= (6 + \sqrt{18})(5) + 9 \\ &= 51.21 + 9 \\ &= 60.21 \end{aligned}$$

$$\begin{aligned} V &= Bh \\ B &= 4.5 \quad h = 5 \\ V &= (4.5)(5) \\ &= 22.5 \end{aligned}$$

$$\begin{aligned} 3^2 + 3^2 &= c^2 \\ 9 + 9 &= c^2 \\ 18 &= c^2 \\ \sqrt{18} &= c \end{aligned}$$

6. S.A. $36\pi\text{m}^2$

Vol $36\pi\text{m}^3$

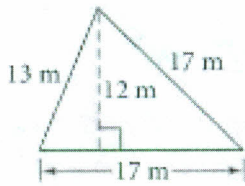


$$\begin{aligned} V &= \frac{4}{3}\pi r^3 \\ r &= 3 \\ V &= \frac{4}{3}\pi(3)^3 \\ V &= 36\pi \end{aligned}$$

$$\begin{aligned} S.A. &= 4\pi r^2 \\ r &= 3 \\ S.A. &= 4\pi(3)^2 \\ &= 36\pi \end{aligned}$$

Find the area of each figure.

7)



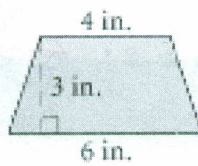
$$A = \frac{1}{2}bh$$

$$b = 17 \quad h = 12$$

$$A = \frac{1}{2}(17)(12)$$

$$A = 102 \text{ m}^2$$

8

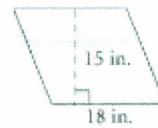


$$A = \frac{1}{2}h(b_1 + b_2)$$

$$h = 3 \quad b_1 = 4 \quad b_2 = 6$$

$$A = \frac{1}{2}(3)(4 + 6) = 15 \text{ in}^2$$

9)



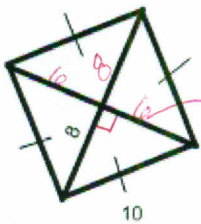
$$A = bh$$

$$b = 15 \quad h = 18$$

$$A = 15(18)$$

$$A = 270 \text{ in}^2$$

10)

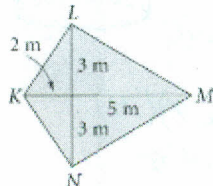


$$A = \frac{1}{2}d_1d_2$$

$$d_1 = 16 \quad d_2 = 12$$

$$A = \frac{1}{2}(16)(12) = 96 \text{ units}^2$$

11)



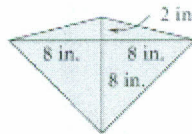
$$A = \frac{1}{2}d_1d_2$$

$$d_1 = 6 \quad d_2 = 7$$

$$A = \frac{1}{2}(6)(7)$$

$$A = 21 \text{ m}^2$$

12)

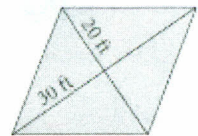


$$A = \frac{1}{2}d_1d_2$$

$$A = \frac{1}{2}(10)(16)$$

$$A = 80 \text{ in}^2$$

13)



$$A = \frac{1}{2}d_1d_2$$

$$A = \frac{1}{2}(40)(60)$$

$$A = 1200 \text{ ft}^2$$

15) How much cardboard do you need to make a closed box that is 4 ft by 5 ft by 2 ft?

$$SA = ph + 2B$$

$$p = 12 \quad h = 2 \quad B = 8$$

$$SA = (12)(2) + 2(8)$$

$$= 60 + 16$$

$$= 76 \text{ ft}^2$$



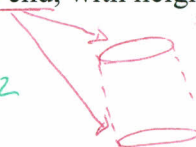
16) How much poster board do you need to make a cylinder, open at each end, with height 9 in. and diameter 4.5 in.?

$$SA = 2\pi rh$$

$$r = 2.25 \quad h = 9$$

$$2\pi(2.25)(9)$$

$$4.5\pi(9) \quad 40.5\pi \approx 127.24 \text{ in}^2$$



* Just L.A.

17) A rectangular prism has a volume of 100 ft^3 . If the base measures 5 ft by 8 ft, what is the height of the prism?



$$V = Bh$$

$$B = 40 \quad V = 100$$

$$100 = 40h$$

$$2.5 = h$$

$$\text{the height} = 2.5 \text{ ft}$$

18) Find the surface area of a melon with circumference 18 in. Round your answers to the nearest tenth.

$$C = 2\pi r \quad C = 18$$

$$18 = 2\pi r$$

$$\frac{9}{\pi} = r$$

$$SA = 4\pi r^2$$

$$SA = 4\pi \left(\frac{9}{\pi}\right)^2$$

$$= 4\pi \frac{81}{\pi^2}$$

$$SA = \frac{324}{\pi} \approx 103.13 \rightarrow 103.1 \text{ in}^2$$

19.) The volume of a sphere is 4200 ft^3 . Find the surface area to the nearest tenth.

$$V = \frac{4}{3}\pi r^3$$

$$4200 = \frac{4}{3}\pi r^3$$

$$3150 = \pi r^3$$

$$1002.68 = r^3$$

$$\sqrt[3]{1002.68} = r$$

$$10.00 = r$$

$$SA = 4\pi r^2$$

$$= 4\pi (10.00)^2$$

$$= 400.00\pi \approx 1256.64 \text{ ft}^2$$